Listing of the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (canceled)

2. (canceled)

3. (canceled)

4. (canceled)

5. (canceled)

6. (canceled)

7. (canceled)

8. (canceled)

9. (canceled)

10. (canceled)

11. (canceled)

12. (canceled)

13. (canceled)

14. (canceled)

15. (canceled)

16. (canceled)

17. (canceled)

18. (canceled)

19. (canceled)

20. (canceled)

21. (canceled)

22. (canceled)

23. (previously presented) A motion sensor comprising:

an assembly having suspension members, the suspension members isolating the assembly and components mounted on the assembly from vibrations and passing digital signals between at least one component mounted on the assembly and an external controller not mounted on the assembly;

a vibrating member mounted on the assembly;

a sensor mounted on the assembly for detecting movement of the vibrating member in response to rotation of the assembly, the sensor outputting an analog signal responsive to the rotation of the assembly; and

digital electronics mounted on the assembly and coupled to the sensor and the suspension members, the digital electronics including a register that accumulates a programmable number of digital samples of the analog signal from the sensor and transmits, through at least one of the suspension members, digital data indicative of the rotation of the

assembly to the external controller, the programmable number of digital samples controlling the bandwidth of the sensor.

24. (new) The motion sensor as in clam 23 wherein at least one suspension member of the suspension members is a conductive helical spring.

25. (new) The motion sensor as in clam 23 wherein the digital data is communicated serially using a digital communication protocol.

26. (new) The motion sensor as in claim 23 wherein the digital electronics stores a calibration value and calibrates the digital data in response to the stored calibration data.

27. (new) The motion sensor as in claim 26 wherein the calibration value is generated external to the digital electronics and transmitted to the digital electronics digitally over at least one of the suspension members.

28. (new) The motion sensor as in claim 26 wherein the calibration value is generated by the digital electronics.

29. (new) The motion sensor as in claim 28 wherein the digital electronics includes an auto-calibration loop that determines the calibration factor and wherein the digital electronics further stores a digital startup value transmitted over at least one of the suspension members that seeds the calibration factor at startup.

30. (new) The motion sensor as in claim 23 wherein the digital electronics stores a digital value transmitted over at least one of the suspension members that controls the amplitude of vibration of the vibrating member.

31. (new) The motion sensor as in claim 23 further comprising a driver coupled to the vibrating member, wherein the digital electronics stores a digital value transmitted over at least one of the suspension members that controls the start-up frequency of the driver.

32. (new) A method for processing signals from a vibratory rotational rate sensor, comprising the steps of:

detecting movement of a vibrating member in response to rotation of the sensor;

outputting an analog signal responsive to the movement;

accumulating a programmable number of digital samples of the analog signal, the programmable number of digital samples controlling the bandwidth of the sensor; and

transmitting digital data indicative of the rotation of the sensor, the transmitted digital data based on the accumulated digital samples.

33. (new) The method of claim 32, wherein the step of transmitting includes transmitting the digital data over at least one suspension member attached to the sensor.

34. (new) The method of claim 32, wherein the step of transmitting includes transmitting the digital data using a digital communication protocol.

35. (new) The method of claim 32, further comprising the step of generating a calibration value for the sensor.

36. (new) The method of claim 35, further comprising the steps of:

storing the calibration value; and

calibrating the digital data prior to transmitting.

37. (new) An apparatus for sensing motion, comprising:

means for detecting movement of a vibrating member in response to rotation of the sensor;

means for outputting an analog signal responsive to the movement;

means for accumulating a programmable number of digital samples of the analog signal, the programmable number of digital samples controlling the bandwidth of the sensor; and

means for transmitting digital data indicative of the rotation of the sensor, the transmitted digital data based on the accumulated digital samples

38. (new) The apparatus of claim 37, wherein the means for transmitting includes means for transmitting the digital data over at least one suspension member attached to the sensor.

39. (new) The apparatus of claim 37, wherein the means for transmitting includes means for transmitting the digital data using a digital communication protocol.

40. (new) The apparatus of claim 37, further comprising means for generating a calibration value for the sensor.

41. (new) The apparatus of claim 40, further comprising:

means for storing the calibration value; and

means for calibrating the digital data prior to transmitting.